

REMARKS/DISCUSSION OF ISSUES

Claims 1, 3 and 4 are in the application. Claims 1 and 3 are rejected. Claim 4 is newly presented.

Claims 1 and 3 are rejected under 35 USC 103(a) as being unpatentable over Verschueren in view of Whitman et al. (U.S. patent 5,723,937) (herein 'Whitman').

Verschueren discloses a high-pressure discharge lamp with a heat shield for influencing the heat balance of the discharge tube. See col. 1, lines 14, 15. The invention lies in the construction of the heat shield, which results in a reduction of the spread of the cold spot temperature. See col. 1, lines 51-59. The outer tube of the lamp shown in Fig. 1 to illustrate the invention happens to have a tubular shape. However, there is no teaching or suggestion that the particular shape of the outer bulb has any particular advantage for the invention or otherwise. Moreover, Verschueren does not teach or suggest the application of any coatings of any type to the surface of the outer bulb.

Whitman discloses a light-scattering coating, said to be useful for reflectors, lamps and lenses. Fig. 1(a) shows an incandescent lamp 10 having a tubular quartz envelope 12 with a filament 14 sealed therein. The outer surface 22 is coated with a light-scattering coating 26.

Whitman's lamp 10 is similar to Applicant's discharge vessel 3, in that both emit light from within a tubular envelope. However, Whitman's lamp 10 is not surrounded by an outer bulb with a light-scattering coating. Rather, the outer surface 22 of Whitman's lamp 10 carries the light-scattering coating 26 directly.

Other structures shown by Whitman, in Figs. 2(a), 2(b), 2(c) and 3, all show lamps within outer reflector-shaped envelopes. There is no teaching or suggestion of a lamp in an outer, tubular-shaped envelope.

The Examiner states that it would have been obvious in view of the teachings of Whitman to provide a light-scattering layer on the outer bulb of Verschueren for the purpose of diffusing the light source image, as taught by Whitman (col. 2, lines 5-10).

However, Verschueren's invention lies in the construction of a heat shield for influencing the heat balance of the discharge tube, which results in a reduction of the spread of the cold spot temperature. While the outer tube of the lamp shown in Fig. 1 happens to have a tubular shape, there is no teaching or suggestion that the shape of the outer bulb has any advantage for the invention or otherwise. Moreover, Verschueren does not teach or suggest any coatings of any type, nor the desirability of applying such coatings, to the surface of the outer bulb.

Thus, Verschueren is devoid of any suggestion which would lead the skilled practitioner to apply a light-scattering coating on the outer envelope 1 of the lamp of Fig. 1.

Whitman shows the addition of a light-scattering layer 26 to the outer surface 22 of lamp 10 of Fig. 1(a). Whitman also shows the addition of light-scattering layers to the outer surface of bulb 30 (Fig. 2(c)), to the inner and outer surfaces of reflector 41 (Figs. 2(a), (b) and (c)), and to the outer surface of lens 86 (Fig. 3).

However, Whitman does not teach or suggest a lamp structure in which an outer tubular envelope surrounds an inner lamp, as do Verschueren and Applicant, nor the application of a

light-scattering coating to such an outer tubular envelope, as taught and claimed by Applicant.

Accordingly, it would not have been obvious in view of Whitman to add a light-scattering layer to the outer tubular envelope of Verschueren, and it is urged that the rejection is in error and should be withdrawn.

Claim 3 is rejected under 35 USC 103(a) over Verschueren in view of Whitman and further in view of Kinczel et al. (U.S. patent 5,004,948) (herein 'Kinczel') and Thornton (U.S. patent 4,315,193). Both Kinczel (col. 7, line 55 - col. 8, line 16) and Thornton (col. 3, line 67 - col. 4, line 2) are cited to show electrostatic coating processes for light-scattering layers.

Kinczel describes in the referenced passage the structure of the high-pressure mercury vapor gas discharge lamp of Fig. 5, including a luminescent coating 2 consisting of one or two layers, which can be prepared by electrostatic methods. There is no mention of a light-scattering layer, or that the layer or layers of coating 2 have light-scattering properties. Moreover, there is no mention of an electrostatic coating process for a light-scattering layer.

Thornton also describes a high-pressure mercury vapor lamp with phosphor materials coated as a layer 34, using a liquid coating technique or a dry electrostatic precipitation technique. Thornton also mentions with reference to Fig. 3 a layer 42 of a light-scattering material. Significantly, there is no mention of any coating technique for layer 34 (col. 4, lines 18-25).

Thus, neither Kinczel nor Thornton teach or suggest a light-scattering layer produced by an electrostatic coating process, and accordingly, it is urged that the rejection is in

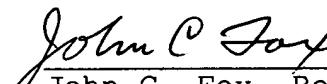
error and should be withdrawn.

In order to provide claim coverage of the particular embodiment shown in Fig. 1 and described at page 2, lines 31 and 32 of Applicant's specification, in which the outer bulb is internally provided with a light-scattering layer, new claim 4 is presented.

For all of the reasons already presented with respect to the rejection of claims 1 and 3 over Verschueren in view of Whitman, it is urged that claim 4 is also patentable.

In view of the foregoing, Applicant respectfully requests that the Examiner withdraw the rejections of record, allow all the pending claims, and find the application to be in condition for allowance.

Respectfully submitted,

  
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